

Serial No. 10/680,286
Docket No. CL2180 US NA

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Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): An *E. coli* strain comprising:

- a) a disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system preventing expression of active PEP-glucose phosphotransferase system proteins;
- b) an up regulated endogenous *galP* gene encoding active galactose-proton symporter;
- c) an up regulated endogenous *glk* gene encoding active glucokinase; and
- d) a down regulated endogenous *gapA* gene encoding active glyceraldehyde 3-phosphate dehydrogenase.

Claim 2 (original): The *E. coli* strain of Claim 1, wherein the disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system comprises one or more of:

- i) disrupted endogenous *ptsH* gene preventing expression of active phosphocarrier protein;
- ii) disrupted endogenous *ptsI* gene preventing expression of active phosphoenolpyruvate-protein phosphotransferase; and
- iii) disrupted endogenous *crr* gene preventing expression of active glucose-specific IIA component.

Claim 3 (currently amended): The *E. coli* strain of Claims 1 or 2, further comprising ~~one or more of:~~

- ~~e)~~ a disrupted endogenous *arcA* gene preventing expression of active aerobic respiration control protein;

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- ~~f) an up-regulated endogenous *pps* gene encoding active phosphoenolpyruvate carboxylase;~~
- ~~g) an up-regulated endogenous *btuR* gene encoding active cob(II)alamin adenosyltransferase; and~~
- ~~h) an up-regulated *yqhD* gene encoding active alcohol dehydrogenase.~~

Claim 4 (withdrawn): The *E. coli* strain of Claims 1, 2, or 3, further comprising one or more of:

- i) a disrupted endogenous *mgsA* gene preventing the expression of active methylglyoxal synthase;
- j) a disrupted endogenous *ackA* gene preventing the expression of active acetate kinase;
- k) a disrupted endogenous *pta* gene preventing the expression of active phosphotrasacetylase;
- l) a disrupted endogenous *aldA* gene preventing the expression of active aldehyde dehydrogenase A; and
- m) a disrupted endogenous *aldB* gene preventing the expression of active aldehyde dehydrogenase B.

Claim 5 (withdrawn): The *E. coli* strain of Claims 1, 2, 3, or 4, further comprising one or more of:

- n) a disrupted endogenous *edd* gene preventing expression of active phosphogluconate dehydratase;
- o) a disrupted endogenous *glpK* gene preventing expression of active glycerol kinase; and
- p) a disrupted endogenous *gldA* gene preventing expression of active NADH-dependent glycerol dehydrogenase.

Claim 6 (withdrawn): A method for the bioproduction of 1,3-propanediol comprising contacting the *E. coli* strain of Claims 1, 2, 3, 4 or 5 with a suitable carbon substrate under suitable conditions.

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Claim 7 (withdrawn): The method of Claim 6, wherein the *E. coli* strain further comprises:

- (i) glycerol-3-phosphate dehydrogenase;
- (ii) glycerol-3-phosphatase;
- (iii) dehydratase; and
- (iv) dehydratase reactivation factor.

Claim 8 (currently amended): An *E. coli* strain comprising

- a) a disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system preventing expression of active PEP-glucose phosphotransferase system proteins;
- b) an up regulated endogenous *galP* gene encoding active galactose-proton symporter;
- c) an up regulated endogenous *glk* gene encoding active glucokinase;
- d) a down regulated endogenous *gapA* gene encoding active glyceraldehyde 3-phosphate dehydrogenase;
- e) a disrupted endogenous *arcA* gene preventing expression of active aerobic respiration control protein;
- f) an up regulated endogenous *ppc* gene encoding active phosphoenolpyruvate carboxylase;
- g) an up regulated endogenous *btuR* gene encoding active cob(I)alamin adenosyltransferase;
- h) an up regulated *yqhD* gene encoding active alcohol dehydrogenase;
[I.]
- i) a disrupted endogenous *mgsA* gene preventing the expression of active methylglyoxal synthase;
- j) a disrupted endogenous *ackA* gene preventing the expression of active acetate kinase;
- k) a disrupted endogenous *pta* gene preventing the expression of active phosphotrasacetylase;
- l) a disrupted endogenous *aldA* gene preventing the expression of active aldehyde dehydrogenase A;

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- m) a disrupted endogenous *aldB* gene preventing the expression of active aldehyde dehydrogenase B; [[.]]
- n) a disrupted endogenous *edd* gene preventing expression of active phosphogluconate dehydratase;
- o) a disrupted endogenous *glpK* gene preventing expression of active glycerol kinase;
- p) a disrupted endogenous *gldA* gene preventing expression of active NADH-dependent glycerol dehydrogenase; and
- q) one plasmid selected from the group consisting of
 - 1) a plasmid comprising
 - i) a first operon further comprising genes encoding glycerol-3-phosphate dehydrogenase and glycerol-3-phosphatase,
 - ii) a second operon further comprising a 1.6 long GI promoter controlling genes encoding dehydratase and a gene encoding a first subunit of dehydratase reactivation factor,
 - iii) a third operon further comprising a second subunit of dehydratase reactivation factor, and
 - iv) having the sequence of SEQ ID NO:68;
 - 2) the plasmid of SEQ ID NO:68, optionally containing orfW,
 - 3) the plasmid of 1) or 2), wherein the first operon of i) is present in reverse orientation; and
 - 4) the plasmid of 1), 2) or 3, where a 1.5 long GI promoter replaces the 1.6 long GI promoter in the second operon of ii).